

Astragaloside IV Datasheet

4th Edition (Revised in July, 2016)

[Product Information]

Name: Astragaloside IV

Catalog No.: CFN99171

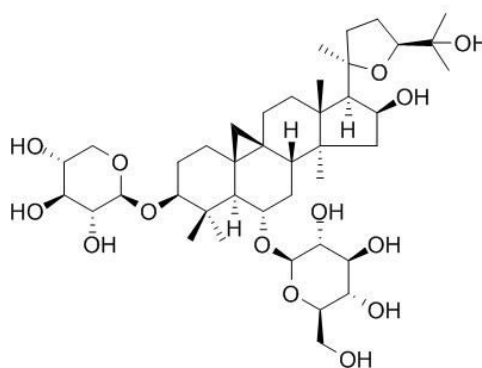
Cas No.: 84687-43-4

Purity: > 98%

M.F: C₄₁H₆₈O₁₄

M.W: 784.98

Physical Description: White powder



Synonyms: beta-D-Glucopyranoside;(3beta,6alpha,16beta,20R,24S)-20,24-epoxy-16,25-dihydroxy-3-(beta-D-xylopyranosyloxy)-9,19-cyclolanostan-6-yl;(5xi,6beta,8xi,9xi,16alpha,20R,24S)-16,25-dihydroxy-3-(beta-D-xylopyranosyloxy)-20,24-epoxy-9,19-cyclolanostan-6-yl beta-D-glucopyranoside.

[Intended Use]

1. Reference standards;
2. Pharmacological research;
3. Food research;
4. Cosmetic research;
5. Synthetic precursor compounds;
6. Intermediates & Fine Chemicals;
7. Ingredient in supplements, beverages;
8. Others.

[Source]

The root of *Astragalus membranaceus* (Fisch.) Bunge.

[Biological Activity or Inhibitors]

Astragaloside IV, a saponin isolated from *Astragalus membranaceus*, has been shown to protect the myocardium against ischemia/reperfusion injury, it also has beneficial effect in H/R-induced injury may be related to normalization of SR Ca²⁺ pump expression and, thus, it may prevent the depression in SR Ca²⁺ handling.^[1]

Astragaloside IV synergizes with ferulic acid to inhibit renal tubulointerstitial fibrosis in rats with obstructive nephropathy.^[2]

Astragaloside IV attenuates glycated albumin-induced epithelial-to-mesenchymal transition by inhibiting oxidative stress in renal proximal tubular cells.^[3]

Astragaloside IV can reduce phosphorylation of JNK and ERK1/2 induced by complement membranous attack complex, the mechanism of *Astragalus membranaceus* in the treatment of membranous nephropathy (MN) may be related to its attenuation of podocyte injury through regulation of cytoskeleton and mitogen activated protein kinase. ^[4]

Astragaloside IV can reduce blood pressure and triglyceride levels in fructose-fed rats and high dose of astragaloside IV also improves glucose tolerance and endothelium-dependent vasorelaxation, the mechanism is associated with increased levels of aortic NOx and cGMP and is abrogated by blockade of nitric oxide synthase with NG-nitro-L-arginine methyl ester (L-NAME), suggests that astragaloside IV may be useful in ameliorating food-induced metabolic syndrome.^[5]

Astragaloside IV attenuates inflammatory cytokines by inhibiting TLR4/NF- κ B signaling pathway in isoproterenol-induced myocardial hypertrophy, and attenuates Toll-like receptor 4 expression via NF- κ B pathway under high glucose condition in mesenchymal stem cells.^[6,7]

Astragaloside IV can inhibit adenovirus replication and apoptosis in A549 cells in vitro.^[8]

Astragaloside IV can inhibit doxorubicin-induced cardiomyocyte apoptosis mediated by

mitochondrial apoptotic pathway via activating the PI3K/Akt pathway.^[9]

[Solvent]

Pyridine, Methanol, Ethanol, Hot water, etc.

[HPLC Method]^[10]

HPLC-ELSD:

Mobile phase: Acetonitrile -H₂O=35:65 ;

Flow rate: 1.0 ml/min;

Column temperature: 35 °C;

Drift tube temperature: 95 °C;

Atomizer temperature: 50 °C;

Flow rate of nitrogen: 3.0 L/min.

[Storage]

2-8°C, Protected from air and light, refrigerate or freeze.

[References]

- [1] Xu X L, Chen X J, Ji H, *et al. Pharmacology*, 2008, 81(4):325-32.
- [2] Meng L, Tang J, Wang Y, *et al. Brit. J. Pharmacol.*, 2011, 162(8):1805-18.
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- [5] Zhang N, Wang X H, Mao S L. *Molecules*, 2011, 16(5):3896-907.
- [6] Yang J, Wang H X, Zhang Y J, *et al. J. Ethnopharmacol.*, 2013, 150(3):1062-70.
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- [10] Liu Q, Zhongdong L I, Liu J, *et al. Chinese Journal of Modern Applied Pharmacy*,

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